

unfortunate and difficult to understand, for our native *Cypripediums* (notably *C. acaule* and *C. montanum*) are very nearly the most lovely of their group, far surpassing their tropical relatives in delicacy of texture and coloration, and our native *Habenarias*, *Calopogons*, and *Spiranthes* compare favorably with their exotic relations.

Fifty years ago our native orchids received more attention than they now do, and the orchid flora of the northeast was then well known. In 1924 Professor Oakes Ames wrote a little book for the American Orchid Society that was a compendium of our knowledge of orchids in the United States at that time. Unfortunately this has long been out of print and difficult to obtain. Meanwhile the studies of many workers have increased our knowledge tremendously.

We welcome, therefore, the recent appearance of "Native Orchids of North America" by D. S. Correll. Long connected with the Ames Orchid Herbarium at Harvard University, Dr. Correll has observed and collected orchids throughout the United States and is well equipped to prepare a monograph of the native orchids. In addition, he has been fortunate in having the collaboration of E. T. Wherry of the University of Pennsylvania and J. V. Watkins of the University of Florida, who have contributed cultural notes for the various species. The book is essentially a monograph: synonymy is given for each entity considered, and every species and many varieties are fully illustrated from the pens of Mrs. Oakes Ames and Mr. Gordon W. Dillon. Finally, a glossary of technical terms and a full bibliography are appended.

The author has the happy facility of making even a technical description readable, and scattered here and there are delightful paragraphs which carry one far afield for the moment, to the wooded slopes of the Canadian Rockies or the grassy swamps of Florida. G. P. DEWOLF, JR., Department of Botany, Tulane University, New Orleans, La.

Vegetation of the Sonoran Desert. By FOREST SHREVE. Carnegie Institution of Washington Publication no. 591. Volume 1, xii + 192 pp., 27 maps, 37 plates. 1951. Washington, D.C. (\$3.25 (paper); \$3.75 (cloth)).

In outlining his plan for study of the vegetation of the arid regions of North America, Dr. Shreve said, "It is only through a study of the plant communities and the dominant perennials in relation to the conditions of climate and soil that the processes can be evaluated which have given the plant life of an area its distinctive character." The present work is the culmination of these studies in the Sonoran Desert, a region of biological unity comprising southwestern Arizona, extreme southeastern California, and the major portion of Baja California and Sonora, Mexico. For the most part, this area lies

below an elevation of 3000 feet. The annual precipitation ranges from well under five inches to about fifteen inches; its amount and seasonal distribution being considered the most important physical conditions limiting the boundaries of the area and in determining the differences between its various subdivisions. Through intensive study of the physiological and ecological behavior of desert plants at the Carnegie Desert Laboratory at Tucson, members of field expeditions into the Sonoran Desert had intimate knowledge of many of the species encountered and were unusually well prepared to make and interpret observations in the field.

After delimiting and characterizing the four areas which he considers as comprising the North American Desert—the Chihuahuan, the Great Basin, the Mojave, and the Sonoran deserts, Dr. Shreve takes up the Sonoran Desert on the basis of its perennial vegetation, delimiting and discussing in detail the seven vegetational subdivisions which he recognizes therein. The ephemeral herbaceous vegetation is discussed apart from the above in a separate chapter.

In the final chapter the distribution, habitat, and ecological characteristics of twenty-six of the commonest plants of the Sonoran Desert are discussed. Subsequent field work, however, has served to extend the known ranges of several of these species considerably beyond that shown on the distribution maps. Such extensions are to be expected in so vast an area where travel is often difficult. In Baja California, for instance, *Larrea tridentata* is abundant on the low plain southwest of La Paz; *Pachycormus discolor* extends inland to the Sierra Giganta east of Comondú, where it is a large, erect tree; and *Viscainoa geniculata* occurs on the Magdalena Plain.

Thirty-seven excellent photographs depict the characteristic vegetation of the Sonoran Desert and a most useful detailed index completes the volume.

It is fortunate for us that Dr. Shreve was able to complete the manuscript before his death. We are indebted, also, to Dr. Ira Wiggins for seeing it through the press. The volume will stand as a fitting climax of a long career devoted to the study of desert plants. ANNETTA M. CARTER. Department of Botany, University of California. Berkeley.